

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E

Civil in Transportation Engineering

Semester-1

1.Urban Transportation Systems Planning

Course Objectives:

1. To cover concepts of Transportation planning, various modes, transit systems and their suitability.
2. To give idea of modeling in planning, to develop the methodology of travel demand modeling for Urban Transportation Systems.
3. To provide knowledge of Land use planning and transportation interaction.

Course Contents:

1. Introduction to transportation systems planning, various modes of transportation and comparisons, urban transportation system planning process, use and evaluation of various models.
2. Planning methodologies, modeling techniques in planning, problem solving techniques.
3. Urban Mass transportation Systems: Urban transit problems, travel demand, types of transit systems, public, private, para-transit transport, mass and rapid transit systems, coordination, types of coordination.
4. Travel demand modeling: Trip generation, trip distribution, modal split analysis, trip assignment techniques, and various models, transportation compact study methodologies.
5. Network assignment methods, connectivity, strategies for the evaluation of ultimate transportation framework and case studies. Strategies for the evaluation of alternate transportation plans and plan implementation.
6. Land use planning models and their suitability. Transportation impacts study methodologies
7. Urban goods movement, framework and case studies.

Tutorials:

Problems based on:

1. Trip generation: Linear Regression and Cross Category analysis.
2. Trip distribution: Growth Factor Methods, Gravity Model.
3. Modal split analysis.
4. Trip assignment: Shortest path analysis and network-assignment, connectivity.
5. Land use planning model (Lowery and Garin Lowery model).
6. Computer application for solving the above mentioned problems.

Field work: Collection of Home – Interview data. Presentation with group discussion on its analysis and interpretations.

Field Visit: Visit to Urban Mass Transportation System Service - Depot, Terminals, Offices.

References :

1. B.G.Hutchinson, *Principles of urban transportation system planning*- McGraw-Hill, New York, 1974
2. Edward K.Morlok, *Transportation Engg. and Planning*
3. W.Dickey, *Metropolitan Transportation Planning* Tata McGraw-Hill, New Delhi, 1975
4. Blunder and Black, *Land use Transportation System*
5. J.Ortuzer and L.G. Willumsen, *Modelling Transport*, Johan Wiley and Sons Chincester,1994
6. Vukan R. Vuchic, *Urban Transit : Operations, Planning and Economics*, Wiley Sons Publishers.
7. Peter White, *Public Transport*, UCL Press
8. Kadiyali L.R., *Traffic Engineering and Transport Planning*, Khanna Publishers
9. Khisty, C J., *Transportation Engineering – An Introduction*, Prentice-Hall, NJ
10. TCRP Report 30, TCRP Report 95, TCRP Report 100
11. S.C. Saxena, *Traffic Planning and Design*, Dhanpat Rai Pub., New Delhi.
12. Partho Chakraborty and Animesh Das, *Principles of Transportation Engineering*, PHI
13. C. S. Papacostas, *Fundamentals of Transportation System Analysis*, PHI.
14. James H. Banks, *Introduction to Transportation Engineering*, WCB-McGraw Hill, New York